1. A multi-wavelength optical disc comprising:

a substrate comprising at least one information record layer on which optical signal consisting of at least one wavelength light beam components is recorded by modulating the layer' s transmissivity for each of said components, wherein the information layers located within the focal depth of a objective lens for reading the disc when the disc is being read;

a reflective layer on the substrate to reflect the modulated optical signal; and

a protective layer on the reflective layer.

2. The multi-wavelength optical disc as in claim 1 further comprises a photochromic super-resolution mask layer sandwiched between the substrate and the reflective layer, the photochromic super-resolution mask layer comprising high-order non-linear photochromic materials; wherein all the information layers and the mask layer located within the focal depth of a objective lens for reading the disc when the disc is being read.

3. The multi-wavelength optical disc as in claim 1, wherein the information layer comprises photochromic materials.

4. The multi-wavelength optical disc as in claim 1, wherein the information layer being pre-stamped with information pits.

5. A multi-wavelength optical disc comprising:

a substrate;

at least one recording layer on the substrate, wherein said at least one recording layer comprising at least one kind of photochromic material, said recording layers being orderly arranged one by one on the substrate if there are more than one recording layers, and said at least one recording layer located within the focal depth of a objective lens for reading or writing the disc when the disc is being read or written;

a reflective layer on the recording layers to reflect the light signal transparanced from the recording layer, and

a protective layer on the reflective layer.

6. The multi-wavelength optical disc as in claim 5 comprises one recording layer comprising the compound of at least two kinds of photochromic materials.

7. The multi-wavelength optical disc as in claim 5 wherein at least one of said at least one recording layer comprising the compound of at least two kinds of photochromic materials.

8. The multi-wavelength optical disc as in claim 5 wherein said at least one recording layer comprising the compound of organic compound of spiropyran, spirooxazine, fulgide or azo, or the mixture thereof.

9. The multi-wavelength optical disc as in claim 5, further comprises a photochromic super-resolution mask layer, and at least one of said recording layer(s) sandwiched between the photochromic super-resolution mask layer and the reflective layer, wherein the recording layers and the mask layer located within the focal depth of a objective lens for reading or writing the disc when the disk is being read or written.

10. The multi-wavelength optical disc as in claim 5 wherein said photochromic super-resolution mask layer comprises organic compounds of spiropyran or spirooxazine or fulgide or azo, or the mixture thereof.

11. The multi-wavelength optical disc as in claim 5 wherein the thickness of said at least one recording layer is between 5nm -- 1000nm.

12. A apparatus for writing signal to a multi-wavelength disc, the multi-wavelength optical disc comprises a recording layer on which a multi-wavelength optical signal has been recorded, and a reflective layer on said recording layers; said apparatus comprises:

at least one monochromatic light source, and each one of said at least one monochromatic light source generating light beam with different wavelength;

a light beam combiner optically coupled to the light source for multiplying the light beam from said at least one monochromatic source to a coaxial parallel light beam containing all said different wavelengths;

a beam focalizer optically coupled to the combiner for having the coaxial parallel light beam focussed on all said recording layers located within the focal depth, said multi-wavelength signals recording layers being recorded on said recording layers.

13. The apparatus for writing signal to a multi-wavelength disc as in claim 12, wherein, said beam combiner comprises a prism for superposing the collimated light beams from said at least one monochromatic resources to a coaxial parallel multi-wavelength beam.

14. The apparatus for writing signal to a multi-wavelength disc as in claim 12, wherein said beam focalizer further comprises at least one objective lens, the recording layers of the multi-wavelength disc being within the focal depth of said objective lens.

15. A apparatus for reading or writing signal recorded on or to the multi-wavelength disc comprising:

at least one monochromatic light source, and each one of said at least one monochromatic light source generating light beam with different wavelength;

a light beam combiner optically coupled to the light source for multiplying the light beam from said at least one monochromatic source to a coaxial parallel light beam containing all said different wavelengths;

a beam focalizer optically coupled to the combiner for having the coaxial parallel light beam focussed on all said recording layers of the disc located within the focal depth of the beam focalizer, said multi-wavelength signals recording layers being recorded on said recording layers;

a beam receiver optically coupled to the disc for receiving the coaxial parallel light beam reflected by the reflective layer;

a beam splitter optically coupled to the beam receiver for splitting the received coaxial parallel light beam from the beam receiver to monochromatic optical signals with different wavelengths;

at least one optical detector optically coupled to the beam splitter for detecting the split monochromatic optical signals.

16. The apparatus as in claim 15, wherein said beam combiner comprises a prism for superposing the collimated light beams from said at least one monochromatic resources to a coaxial parallel multi-wavelength beam.

17. The apparatus as in claim 15, wherein said beam focalizer further comprises at least one objective lens, the recording layers of the multi-wavelength disc being within the focal depth of said objective lens.

18. The apparatus as in claim 15, wherein said monochromatic resource comprises a collimating lens for collimating the light beam from the monochromatic source.

19. The apparatus as in claim 16, wherein said prism is a dispersing prism.

20. The apparatus as in claim 19, wherein said dispersing prism is a dispersing prism wedge, combining the various monochromatic light beam with different incident angle to a coaxial parallel light beam.

21. The apparatus as in claim 20, wherein the vertex angle of the dispersing prism wedge mentioned is between 10° and 70° .

22. The apparatus as in claim 21, wherein the dispersing prism comprises quartz glass.

23. A method for writing a optical signal to a multi-wavelength optical disc, the multi-wavelength optical disc comprising a multi-wavelength recording layer comprising various photochromic materials, and a reflective layer on the mentioned recording layers, the recording layer located within the focal depth of a objective lens for focussing the signal on said recording layer; said method comprises steps of:

modulating each light sources based upon the signal to be written to the disc to generate several light beams with different wavelength, the intensity of the light beams being above the photochromic threshold of the photochromic materials when the beam reaches the recording layer of the optical disc;

combining said light beams to one coaxial parallel light beam with different wavelength components;

adjusting the objective lens to have the recording layers of the disc located within the focal depth to focus the coaxial parallel light beam with different wavelength on the recording layer;

writing the optical signal to the recording layer, wherein each component of the coaxial parallel light beam with different wavelength components writing corresponding signal to the layer of the optical disc.

24. The method as in claim 23, wherein the steps of modulating each light source is a multistage modulation method.

25. A method for reading the data stored in a multi-wavelength optical disc, the multi-wavelength optical disc comprising a multi-wavelength recording layers comprising several kinds of photochromic materials, and a reflective layer on the recording layer, the recording layer located within the focal depth of a objective lens for focussing the signal on said recording layer; said method comprises steps of:

generating constant several light beams with different wavelength by several light source, the intensity of the beam being below the photochromic threshold of the photochromic materials when the beam reaches the recording layer of the optical disc;

combining the light beams to one coaxial parallel light beam with different wavelength components;

adjusting the objective lens to have the recording layers of the disc located within the focal depth to focus the coaxial parallel light beam with different wavelength on the recording layer;

modulating the coaxial parallel light beam by the recording layer to a modulated multi-wavelength coaxial parallel light beam, wherein different layer modulating the components with a corresponding wavelength;

splitting the modulated multi-wavelength coaxial parallel light beam with different wavelength components to several single-wavelength light beams.

detecting said several single-wavelength light beams.

26. The method as in claim 25 further comprises a step of reflecting the modulated

multi-wavelength coaxial parallel light beam.